17. A process for the preparation of well-defined cells of substantially uniform size and shape to be used in an electrophoretic display, which process comprises the steps of:

a) coating a layer of radiation curable composition on a conductor film;

b) imagewise exposing the radiation curable layer;

c) removing the unexposed areas by a developer or solvent to form -an array of microcups; and

d) filling the microcups with a charged pigment dispersion in a dielectric solvent or solvent mixture to form the well-defined cells.

18. The process of Claim 17 wherein said radiation curable composition comprises a material selected from the group consisting of polyvalent acrylate, polyvalent methacrylate, polyvalent vinyl, polyvalent epoxide, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

20. A process for the preparation of an array of well-defined cells used in an electrophoretic display, which process comprises the steps of:

a) filling an array of microcups with a dielectric fluid containing a mixture of dispersions in a dielectric solvent or solvent mixture, said mixture of dispersions comprising at least a suspension of charged pigment particles and a dispersion of thermoplastic or thermoset precursor composition which has a specific gravity lower than that of the dielectric solvent or solvent mixture; and

b) sealing the array of filled microcups to form the array of well-defined cells by curing the thermoplastic or thermoset precursor composition during or after it phase separates and forms a supernatant layer above the dielectric solvent or solvent mixture.

21. The process of Claim 20 wherein the thermoplastic or thermoset precursor composition comprises a material selected from the group consisting of polyvalent acrylate, polyvalent methacrylate, cyanoacrylate , polyvalent vinyl, polyvalent epoxide, polyvalent isocyanate, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

22. A process for the preparation of well-defined cells used in an electrophoretic display, which process comprises the steps of:

a) filling microcups with a dielectric fluid containing at least a suspension of charged pigment particles in a dielectric solvent or solvent mixture,

b) sealing the filled microcups by overcoating onto said dielectric fluid a thermoplastic or thermoset precursor composition which is at least partially immiscible with said dielectric solvent or solvent mixture and has a specific gravity lower than that of said dielectric solvent or solvent mixture, and

c) curing said thermoplastic or thermoset precursor composition to form the well-defined cells.

24. The process of Claim 22 wherein the overcoated thermoplastic or thermoset precursor composition is cured by radiation, heat, moisture, or interfacial reactions at the interface between the composition and the electrophoretic fluid.

25. The process of Claim 22 wherein the thermoplastic or thermoset precursor composition comprises a material selected from the group consisting of polyvalent acrylate, polyvalent methacrylate, cyanoacrylate, polyvalent vinyl, polyvalent epoxide, polyvalent isocyanate, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

26. A process for the manufacture of an electrophoretic display, which process comprises the steps of:

a) preparing an array of microcups by first coating a layer of thermoplastic or thermoset precursor on a conductor film followed by embossing the thermoplastic or thermoset precursor layer with a male mold or by imagewise exposing a layer of a radiation curable material and removing the unexposed areas;

b) filling the thus-formed array of microcups with a dielectric fluid containing at least a charged pigment suspension in a dielectric solvent or solvent mixture;

c) sealing the array of filled microcups to form a sealed array of electrophoretic cells; and

d) laminating the sealed array of electrophoretic cells with a second conductor film pre-coated with an adhesive layer to form the electrophoretic display.

28. A process for the manufacture of a multi-color electrophoretic display, which process comprises the steps of:

a) preparing an array of microcups by first coating a layer of thermoplastic or thermoset precursor on a conductor film followed by embossing the thermoplastic or thermoset precursor layer with a male mold or by imagewise exposing a layer of a radiation curable material and removing the unexposed areas;

b) laminating the thus formed array of microcups with a layer of positive photoresist;

c) imagewise exposing the positive photoresist to selectively open the microcups in a predetermined area;

d) filling the opened microcups with a dielectric fluid comprising at least a white pigment dispersion in a dielectric solvent or solvent mixture containing a dye or pigment dispersion of a first color;

e) sealing the filled microcups to form sealed electrophoretic cells containing said white pigment dispersion in said dielectric solvent or solvent mixture of the first color;

f) repeating steps c) to e) in different areas with electrophoretic fluids of different colors to generate additional groups of sealed electrophoretic cells containing electrophoretic fluids of different colors, thus forming a sealed array of electrophoretic cells;

g) removing residual positive photoresist, if any; and

h) laminating the sealed array of electrophoretic cells with a second conductor film precoated with an adhesive layer to form the multi-color electrophoretic display.

29. The process of Claim 26 wherein the filling and sealing of the microcups is accomplished by filling the microcups with a dielectric fluid containing a mixture of dispersions in a dielectric solvent or solvent mixture, wherein the mixture of dispersions comprises at least a suspension of charged pigment particles and a dispersion of thermoplastic or thermoset precursor composition which has a specific gravity lower than that of the dielectric solvent or solvent mixture, followed by curing the thermoplastic or thermoset precursor composition during or after it phase separates and forms a supernatant layer above the dielectric solvent or solvent mixture.

30. The process of Claim 28 wherein the filling and sealing of the microcups is accomplished by filling the microcups with a dielectric fluid containing a mixture of dispersions in a dielectric solvent or solvent mixture, wherein the mixture of dispersions comprises at least a suspension of charged pigment particles and a dispersion of thermoplastic or thermoset precursor composition which has a specific gravity lower than that of the dielectric solvent or solvent mixture, followed by curing the thermoplastic or thermoset precursor composition during or after it phase separates and forms a supernatant layer above the dielectric solvent or solvent mixture.

31. The process of Claim 26 wherein the sealing of the filled microcups is accomplished by overcoating onto said dielectric fluid a thermoplastic or thermoset precursor composition which is at least partially immiscible with said dielectric solvent or solvent mixture and has a specific gravity lower than that of said dielectric solvent or solvent mixture, followed by curing said thermoplastic or thermoset precursor composition.

32. The process of Claim 28 wherein the sealing of the filled microcups is accomplished by overcoating onto said dielectric fluid a thermoplastic or thermoset precursor composition which is at least partially immiscible with said dielectric solvent or solvent mixture and has a specific gravity lower than that of said dielectric solvent or solvent mixture, followed by curing said thermoplastic or thermoset precursor composition.

37. The process of Claim 22 wherein the dielectric solvent or solvent mixture has a dielectric constant ranging from about 2 to about 30.

51. The process of Claim 22 wherein the dielectric solvent or solvent mixture has a dielectric constant ranging from about 2 to about 10.

55. The process of Claim 20 wherein the dielectric solvent or solvent mixture has a dielectric constant ranging from about 2 to about 30.

Remarks:

Entry of this amendment is respectfully requested. No new matter is added by the amendment because each of the amended claims is fully supported by the application as filed. For example, the amendments to the claims remove redundant wording "the said" in claims 31 and 32, and "low" in claims 37, 51, and 55 (where a range is already given); and clarify the claim language by improving consistency of usage within and between claims, and occasionally by providing explicit antecedent basis where it was formerly implicit.

Entry of the amendment after allowance is believed appropriate because amendment is intended to clarify the wording of the claims, without changing the claim scope, so that the public is better aware of the subject matter intended to be claimed by Applicants. Entry will therefore not require any additional search or examination; the amended claims are patentable in the same manner as the unamended claims; and entry should not involve undue Office effort. The late presentation of the amendment is regretted; but the desired amendments were only noticed on a complete review of the claims in this and related applications after allowance.

Claims 10 – 32, 34, 36 – 41, 48 – 51, and 55 – 64 are in this application, claims 33 and 35 having been canceled, claims 10, 11, 17, 18, 20 – 26, 28 – 32, 37, 51, and 55 having been amended, and no claims having been added by this amendment.

Conclusion

Entry of the amendment is respectfully requested.

Respectfully submitted,

Dated: 6/27/03

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Claims as amended (additions in bold, deletions in strikethrough)

Claims 10, 11, 17, 18, 20 – 22, 24 - 26, 28 - 32, 37, 51, and 55

10. A process for the preparation of well-defined cells of substantially uniform size and shape to be used in an electrophoretic display, which process comprises the steps of:

a) coating a layer of thermoplastic or thermoset precursor on a conductor film;

b) embossing the thermoplastic or thermoset precursor layer with a pre-patterned male mold **to form microcups**;

c) hardening the **embossed** thermoplastic or thermoset precursor layer;

d) releasing the mold from the **hardened** thermoplastic or thermoset precursor layer; and

e) filling the thus-formed ~~array of~~ microcups with a charged pigment suspension in a dielectric solvent or solvent mixture **to form the well-defined cells**.

11. The process of Claim 10 wherein said thermoplastic or thermoset precursor is selected from the group consisting of polyvalent acrylate, **polyvalent** ~~or~~ methacrylate, polyvalent vinyl, polyvalent epoxide, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

17. A process for the preparation of well-defined cells of substantially uniform size and shape to be used in an electrophoretic display, which process comprises the steps of:

a) coating a layer of radiation curable composition on a conductor film;

b) imagewise exposing the radiation curable layer;

c) removing the unexposed areas by a developer or solvent to **form** ~~reveal~~ an array of microcups; and

d) filling the microcups with a charged pigment dispersion in a dielectric solvent or solvent mixture **to form the well-defined cells**.

18. The process of Claim 17 wherein said radiation curable composition comprises **a material** ~~materials~~ selected from the group consisting of polyvalent acrylate, **polyvalent** ~~or~~ methacrylate, polyvalent vinyl, polyvalent epoxide, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

20. A process for the preparation of an array of well-defined cells used in an electrophoretic display, which process comprises the steps of:

a) filling **an array of** ~~the~~ microcups with a dielectric fluid containing a mixture of dispersions in a dielectric solvent or solvent mixture, said mixture of dispersions comprising at least a suspension of charged pigment particles and a dispersion of thermoplastic or thermoset precursor composition which has a specific gravity lower than that of the dielectric solvent or solvent mixture; and

b) sealing the **array of filled** microcups **to form the array of well-defined cells** by curing the thermoplastic or thermoset precursor composition during or after it phase separates and forms a supernatant layer above the dielectric solvent or solvent mixture.

21. The process of Claim 20 wherein the thermoplastic or thermoset precursor composition comprises **a material** ~~materials~~ selected from the group consisting of polyvalent acrylate**, polyvalent** ~~or~~ methacrylate, **cyanoacrylate** ~~cyanoacrylates~~, polyvalent vinyl, polyvalent epoxide, polyvalent isocyanate, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

22. A process for the preparation of well-defined cells used in an electrophoretic display, which process comprises the steps of:

a) filling ~~the~~ microcups with a dielectric fluid containing at least a suspension of charged pigment particles in a dielectric solvent or solvent mixture,

b) sealing the filled microcups by overcoating onto said dielectric fluid a thermoplastic or thermoset precursor composition which is at least partially immiscible with said dielectric solvent or solvent mixture and has a specific gravity lower than that of said dielectric solvent or solvent mixture, and

c) curing said thermoplastic or thermoset precursor composition **to form the well-defined cells**.

24. The process of Claim 22 wherein the overcoated thermoplastic or thermoset precursor composition is cured by radiation, heat, moisture, or interfacial reactions at the interface between the **composition** ~~overcoat~~ and the electrophoretic fluid.

25. The process of Claim 22 wherein the thermoplastic or thermoset precursor composition comprises **a material** ~~materials~~ selected from the group consisting of polyvalent acrylate**, polyvalent** ~~or~~ methacrylate, cyanoacrylate, polyvalent vinyl, polyvalent epoxide, polyvalent isocyanate, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

26. A process for the manufacture of an electrophoretic display, which process comprises the steps of:

a) preparing **an array of** microcups by first coating a layer of thermoplastic or thermoset precursor on a conductor film followed by embossing the thermoplastic or thermoset precursor layer with a male mold or by imagewise exposing a layer of a radiation curable material and removing the unexposed areas;

b) filling ~~in~~ the thus-formed array of microcups with a dielectric fluid containing at least a charged pigment suspension in a dielectric solvent or solvent mixture;

c) sealing the **array of filled** microcups **to form a sealed array of electrophoretic cells**; and

d) laminating the sealed array of electrophoretic cells with a second conductor film pre-coated with an adhesive layer **to form the electrophoretic display**.

28. A process for the manufacture of a multi-color electrophoretic display, which process comprises the steps of:

a) preparing **an array of** microcups by first coating a layer of thermoplastic or thermoset precursor on a conductor film followed by embossing the thermoplastic or thermoset precursor layer with a male **mold** ~~mode~~ or by imagewise exposing a layer of a radiation curable material and removing the unexposed areas;

b) laminating the thus formed array of microcups with a layer of positive photoresist;

c) imagewise exposing the positive photoresist to selectively open the microcups in a predetermined area;

d) filling ~~in~~ the opened microcups with a dielectric fluid comprising at least a white pigment dispersion in a dielectric solvent or solvent mixture containing a dye or pigment dispersion of **a** ~~the~~ first color;

e) sealing the **filled** microcups to form **sealed** ~~closed~~ electrophoretic cells containing said white pigment dispersion in said dielectric solvent or solvent mixture of the first color;

f) repeating ~~Steps~~ **steps** c) to e)~~, if necessary,~~ in different areas **with electrophoretic fluids of different colors** to generate **additional** groups of **sealed electrophoretic cells** ~~microcups~~ containing electrophoretic **fluids** ~~fluid~~ of different colors**, thus forming a sealed array of electrophoretic cells**;

g) removing residual positive photoresist, if any; and

h) laminating the sealed array of electrophoretic cells with a second ~~transparent~~ conductor film precoated with an adhesive layer **to form the multi-color electrophoretic display**.

29. The process of Claim 26 wherein the **filling and** sealing of the microcups is accomplished by filling the microcups with a dielectric fluid containing a mixture of dispersions in a dielectric solvent or solvent mixture, wherein the mixture of dispersions comprises at least a suspension of charged pigment particles and a dispersion of thermoplastic or thermoset precursor composition which has a specific gravity lower than that of the dielectric solvent or solvent mixture, followed by curing the thermoplastic or thermoset precursor composition during or after it phase separates and forms a supernatant layer above the dielectric solvent or solvent mixture.

30. The process of Claim 28 wherein the **filling and** sealing of the microcups is accomplished by filling the microcups with a dielectric fluid containing a mixture of dispersions in a dielectric solvent or solvent mixture, wherein the mixture of dispersions comprises at least a suspension of charged pigment particles and a dispersion of thermoplastic or thermoset precursor composition which has a specific gravity lower than that of the dielectric solvent or solvent mixture, followed by curing the thermoplastic or thermoset precursor composition during or after it phase separates and forms a supernatant layer above the dielectric solvent or solvent mixture.

31. The process of Claim 26 wherein the sealing of the filled microcups is accomplished by overcoating onto ~~the~~ said dielectric fluid a thermoplastic or thermoset precursor composition which is at least partially immiscible with said dielectric solvent or solvent mixture and has a specific gravity lower than that of said dielectric solvent or solvent mixture, followed by curing ~~the~~ said thermoplastic or thermoset precursor composition.

32. The process of Claim 28 wherein the sealing of the filled microcups is accomplished by overcoating onto ~~the~~ said dielectric fluid a thermoplastic or thermoset precursor composition which is at least partially immiscible with said dielectric solvent or solvent mixture and has a specific gravity lower than that of said dielectric solvent or solvent mixture, followed by curing ~~the~~ said thermoplastic or thermoset precursor composition.

37. The process of Claim 22 wherein the dielectric solvent or solvent mixture has a ~~low~~ dielectric constant ranging from about 2 to about 30.

51. The process of Claim 22 wherein the dielectric solvent or solvent mixture has a ~~low~~ dielectric constant ranging from about 2 to about 10.

55. The process of Claim 20 wherein the dielectric solvent or solvent mixture has a ~~low~~ dielectric constant ranging from about 2 to about 30.